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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,488	02/09/2004	Sam Nemazie	SiliconStor-01US	1503

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Maryam Imam, Esq.
LAW OFFICES OF IMAM
Suite 1010
111 North Market St.
San Jose, CA 95113

EXAMINER

LEE, CHUN KUAN

ART UNIT PAPER NUMBER

2181

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/775,488

Applicant(s)

NEMAZIE, SAM

Examiner

Chun-Kuan (Mike) Lee

Art Unit

2181

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-26 and 28-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-26 and 28-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-7, 9-26 and 28-43 have been considered but are moot in view of the new ground(s) of rejection. Claim objections of claims 16-17 are withdrawn. Claims 7-8 and 26-27 rejected under 35 U.S.C. 112 second paragraph are withdrawn. Currently, claims 8 and 27 are canceled and claims 1-7, 9-26 and 28-43 are pending for examination.

Terminal Disclaimer

2. The terminal disclaimer filed on 07/10/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Number 10/775,521 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2181

3. Claims 1, 6-7, 9-14, 20-21, 25-26 and 28-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grieff et al. (US Patent 6,961,813) in view of Talati (US Patent 6,763,402).

4. As per claims 1, 20 and 33, Grieff teaches a switch coupled between a plurality of host units, a device for communicating there between and a method comprising:

a) a first serial advanced technology attachment (ATA) port (Fig. 1, ref. 130) connection to a first host unit, for causing access, by the first host unit, to the device (col. 3, ll. 13-24 and col. 5, l.17 to col. 7, l. 6);

b) a second serial ATA port (Fig. 1, ref. 132) connection to a second host unit, for causing access, by the second host unit, to the device (col. 3, ll. 13-24 and col. 5, l.17 to col. 7, l. 6);

c) a third serial ATA port (device-side link layer on Fig. 1) connection to a device (e.g. serial ATA device), for causing access, by the first or second host unit, to the device (col. 3, ll. 13-24 and col. 5, l.17 to col. 7, l. 6); and

d) an arbitration and control circuit (arbiter module 112 and of Fig. 1), coupled to the first, second and third port, for selecting either the first host unit or the second host unit to be coupled to the device, through the switch (col. 3, ll. 13-24 and col. 5, l.17 to col. 7, l. 6).

Grieff does not expressly teach the switch coupled between the plurality of host units, the device for communicating there between and the method comprising:

Art Unit: 2181

selecting one of the first host or the second host units to concurrently access the device by accepting commands, from either of the first or the second host units, at any given time, including when the device is not in an idle state; and

wherein while one of the first or second host units is coupled to the device, through the switch, the other one of the first or second host units sends a command to the switch for execution by the device.

Talati teaches a system and a method comprising two or more hosts to simultaneous concurrent access the same data storage device by buffering any access request to the data storage device in a queue while said data storage device is busy responding to a prior access and responded to the buffered access request later (col. 2, ll. 14-26).

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to include Talati's queuing of access request into Grieff's arbiter module. The resulting combination of the references teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising:

the first host unit and the second host unit to simultaneous concurrent access the device by buffering any commands received from either of the first host unit and the second host unit in the queue if the device is currently busy responding to the previous command, therefore able to accept the commands at any given time; and

wherein while the device is busy with the command from one of the first host unit or the second host unit, the other one of the first host unit or the second host unit sends

Art Unit: 2181

the command to the switch for execution by the device as said command is buffered in the queue.

Therefore, it would have been obvious to combine Talati with Grieff for the benefit of preventing chaos that might occur in performing the concurrent access to the same storage device (Talati, col. 2, ll. 27-37).

5. As per claims 6 and 25, Grieff and Talati teach all the limitations of claims 1 and 20 as discussed above, where Grieff further teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising wherein said device is a storage unit (disk drive) (Grieff, col. 2, ll. 53-60).

6. As per claims 7 and 26, Grieff and Talati teach all the limitations of claims 1 and 20 as discussed above, where Grieff further teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising wherein said switch employed an enterprise system (Grieff, col. 4, ll. 13-16).

7. As per claims 9, 28 and 34, Grieff and Talati teach all the limitations of claims 1, 20 and 33 as discussed above, where Grieff further teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising wherein information, in the form of data, commands or setup, is transferred from the device to the first or second host units through the switch and the information is modified by the switch prior to being received by the first or second host

Art Unit: 2181

units such that modified information rather than the information is received by the first or second host units (Grieff, col. 12, l. 60 to col. 28).

8. As per claims 10, 30 and 35, Grieff and Talati teach all the limitations of claims 9, 28 and 34 as discussed above, where Grieff further teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising wherein the information is referred to as 'identify drive response' (i.e. IDENTIFY DEVICE) (Grieff, col. 7, ll. 39-61).

9. As per claims 11, 29 and 36, Grieff and Talati teach all the limitations of claims 9, 28 and 34 as discussed above, where Grieff further teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising wherein the information is referred to as 'Tag' (Grieff, col. 12, l. 60 to col. 14, l. 28).

10. As per claims 12, 31 and 37, Grieff and Talati teach all the limitations of claims 1, 20 and 34 as discussed above, where Grieff further teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising wherein information, in the form of data, commands or setup, is transferred from the first or second host units to the device through the switch and the information is modified by the switch prior to being received by the device such that

Art Unit: 2181

modified information rather than the information is received by the device (Grieff, col. 5, l. 65 to col. 6, l. 56 and col. 10, l. 27 to col. 11, l. 36).

11. As per claims 13, 32 and 38, Grieff and Talati teach all the limitation sof claims 12, 31 and 37 as discussed above, where Grieff further teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising wherein the information is referred to as `Tag` (Grieff, col. 5, l. 65 to col. 6, l. 56 and col. 10, l. 27 to col. 11, l. 36).

12. As per claims 14 and 39, Grieff and Talati teach all the limitations of claims 12 and 37 as discussed above, where Grieff further teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising wherein the arbitration and control circuit include a Tag/Sactive Mapping Circuit (Grieff, Command Tracker SM 114 of Fig. 1) for mapping a host tag to a device tag and inverse mapping for identifying a host (Grieff, col. 5, l. 65 to col. 6, l. 56; col. 10, l. 27 to col. 11, l. 36 and col. 12, l. 60 to col. 14, l. 28).

13. As per claim 21, Grieff and Talati teach all the limitations of claims 12 and 37 as discussed above, where Grieff further teaches the switch coupled between the plurality of host units, the device for communicating there between and the method comprising wherein the switch is a serial ATA switch (Grieff, col. 3, l. 13 to col. 4, l. 4 and col. 5, l. 65 to col. 6, l. 56).

14. Claims 2-5 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grieff et al. (US Patent 6,961,813) and Talati (US Patent 6,763,402), and further in view of Ng (US Patent 6,388,590).

Grieff and Talati teach all the limitations of claims 1 and 20 as discussed above.

Grieff and Talati does not expressly teach the switch comprising wherein the ports include a task file, therefore operating as level 4 ports.

Ng teaches the coupling an ATAPI task file (Fig. 3, ref. 72b, 72a) to a serial transceiver port (Fig. 3, ref. 62a, 62b, 64a, 64b), therefore would operate as a level 4 port.

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to include Ng's task file into Grieff and Talati's switch ports. The resulting combination of the references teaches the switch coupled between the plurality of host units, the device for communicating there between and the method further comprising the first and second host task file and the device task file in the switch ports and by including the task files at the ports, the ports are able to operate at level 4

Therefore, it would have been obvious to combine Ng with Grieff and Talati for the benefit of enabling operation of data transfer at faster rate (Ng, col. 2, ll. 27-50).

15. Claims 15-18 and 40-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grieff et al. (US Patent 6,961,813) and Talati (6,763,402), and further in view of "Serial ATA Specification".

16. As per claims 15-16 and 40-41, Grieff and Talati teach all the limitations of claims 1 and 34 as discussed above.

Grieff and Talati does not expressly teach the switch and the method comprising wherein either the first or the second host sends a legacy queue command queued by the device; and wherein either the first or the second host sends a native queue command for execution thereof by the device.

"Serial ATA Specification" teaches the utilization of the legacy ATA queuing (legacy queue command) and the native Serial ATA queuing (native queue command) by the Serial ATA device (Section D.1.5 on page 301).

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to include Serial ATA Specification's queuing of legacy queuing command and the execution of the native queuing command into Grieff and Talati's storage device.

Therefore, it would have been obvious to combine Serial ATA Specification with Grieff and Talati for the benefit of because Grieff and Talati's storage device conforms to the Serial ATA standard, therefore enable backward compatibility to prior technology standard and improve performance by enabling multiple commands to be outstanding within the SATA device at the same time.

17. As per claims 17 and 42, Grieff, Talati and "Serial ATA Specification" teach all the limitations of claims 16 and 41 as discussed above, where Grieff further teaches the

Art Unit: 2181

switch and the method comprising wherein the Tag in the native queue command is modified prior to sending to the Device to avoid using the same Tag for both hosts and not to exceed the maximum allowed Tag value (Grieff, col. 5, l. 65 to col. 6, l. 56 and col. 10, l. 27 to col. 11, l. 36), wherein the maximum number tag is directly related to the free space available on the Outstanding Requests Table (OR_Table).

18. As per claims 18 and 43, Grieff, Talati and "Serial ATA Specification" teach all the limitations of claims 17 and 42 as discussed above, where Grieff further teaches the switch and the method comprising wherein the Tag received in a FIS from the Device is modified to its original value prior to sending the same to the Host (Grieff, col. 5, l. 65 to col. 6, l. 56; col. 10, l. 27 to col. 11, l. 36 and col. 12, l. 60 to col. 14, l. 28).

19. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grieff et al. (US Patent 6,961,813) and Talati (US Patent 6,763,402), and further in view of Shin et al. (US Pub 2002/0191603).

Grieff and Talati teaches all the limitations of claim 1 as discussed above, where Grieff further teaches the switch comprising a Data FIS FIFO (Grieff, host FIS buffer 120 and device FIS buffer 122 of Fig. 1) and an associated FIFO Control (Grieff, Command Tracker SM 114 of Fig. 1) are coupled to the first, second and third ports and are located externally thereto (Grieff, Fig. 1 and col. 5, l. 65 to col. 6, l. 56).

Grieff and Talati does not expressly teach the switch comprising wherein the first, second and third ports are level 3 serial ATA ports.

Art Unit: 2181

Shin teaches the utilization of level 3 serial ATA ports (Fig. 38A and [0005]).

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to include Shin's level 3 serial ATA ports into Grieff and Talati's switch ports. The resulting combination of the references teaches the switch coupled between the plurality of host units, further comprising wherein the first, second and third ports are level 3 serial ATA ports.

Therefore, it would have been obvious to combine Shin with Grieff and Talati for the benefit of providing a communication architecture that provides high-performance for applications at a low cost (Shin, [0011]).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

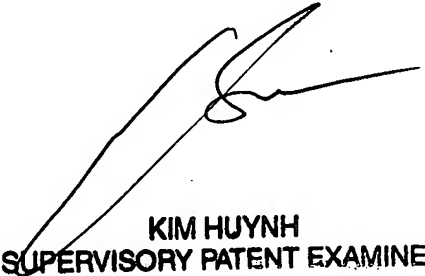
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Kuan (Mike) Lee whose telephone number is (571) 272-0671. The examiner can normally be reached on 8AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz M. Fleming can be reached on (571) 272-4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2181

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.K.L.
08/29/2006



KIM HUYNH
SUPERVISORY PATENT EXAMINER
9/1/06